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ological Survey, but is constructed on the same scale. These maps are sold at the cost of paper and printing. A somewhat similar plan, requiring five to eight sheets, might perhaps be adopted with advantage in this State. Each city, town, and village should, so far as possible, be found entire upon some one sheet; but to secure this, the original plates must be combined and re-arranged, and adjoining sheets must be made to include the same territory to some extent.

"It is desirable that a wall-map of the whole State should be published, in addition to the atlas form just mentioned. A map about $3\frac{1}{2}$ feet by 5 feet in size would include the whole State, with Block Island in its true position. This could be easily arranged, provided the State authorize some arrangement for such publication."

The three States of Massachusetts, Rhode Island, and New Jersey have thus been the first to secure, by a wise co-operation with the United States Geological Survey, good topographical maps of their whole territories. It is one of the most important objects of this institution to make a good map of the United States, without the aid of which no geological work can be carried on satisfactorily. On account of the wide extent of our country, this enterprise is enormous, and requires a long time for its accomplishment. By the co-operation of States the work which is of the greatest importance can be accelerated, and it is to be hoped that other States will follow the example set by three of their number, the good results of which may be seen from the map of New Jersey, so far the only one published.

THE GREAT STORM OF MARCH, 1888.

IT is only after a long period has elapsed that it is possible to describe accurately the meteorological conditions that prevailed at a certain time over a large area, particularly over extensive parts of the ocean: therefore it has not been possible until recently to write the history of the great blizzard that visited the Atlantic States from March 11 to 14, 1888. Lieut. Everett Hayden, who is in charge of the Division of Marine Meteorology of the Bureau of Navigation, has undertaken this work, and presented the results of his interesting study in the fifth of the "Nautical Monographs." The book, which contains the original observations made by masters of vessels in full, is bound in leather to enable it to stand the rough handling incident to use aboard ship, where books in ordinary cloth bindings are quickly ruined. The list of observations shows how valuable is the aid that voluntary observers aboard ships give to the work of the Hydrographic Office. The history of this memorable storm is based almost exclusively on their reports: therefore the endeavors of the Hydrographic Office to enlist as great a number of masters as possible as voluntary observers, and to increase the general interest in marine meteorology among mariners, deserve the greatest possible success. It is well known how much more readily a man will undertake such observations if he knows that they are actually used, than if he believes that they are buried among a vast amount of material: therefore the plan of publishing a monograph of a remarkable gale, with a complete list of observations appended, will, aside from its scientific value, instigate many a mariner to continue or to take up meteorological observations at sea.

Lieut. Hayden represents the meteorological conditions over the Atlantic coast and the adjoining parts of the ocean in four charts, showing lines of equal pressure and of equal temperature. In order to make the maps clearer, temperatures above freezing are represented in pink; those below freezing, in blue; the depth of shade increasing with the departure from this point. In this way the advance of the cold wave from the interior towards the seacoast is shown with admirable clearness, and the meteorological events are easily understood. In the text, the history of the storm is traced from March 11, 7 A.M., when a long trough of low barometer, extending from the west coast of Florida up past the eastern shore of Lake Huron, and far northward, was advancing eastward, causing strong north-westerly winds on its western side. At 10 P.M. this line had advanced eastward as far as the 74th meridian. The cold north-westerly gale, as it is now sweeping over the great warm ocean-current, carrying air at a temperature below the freezing-point over water above 75°F., is rapidly gaining strength, and be-

comes a fierce hurricane. An area of high barometer, which was at Newfoundland the previous day, is slowing down, blocking the advance of the rapidly increasing storm, and about to hold the centre of the line in check to the westward of Nantucket for days, while a terrific north-west gale plays havoc along the coast from Montauk Point to Hatteras, and until the right flank of the line has swung around to the eastward far enough to cut off the supply of warm, moist air pouring in from the north-east. The special value of Lieut. Hayden's description lies in his clear treatment of the influence of the warm, moist Atlantic air upon the development of the storm. He sums up the observations on this argument as follows: "The storm has called attention anew to the sudden deepening of depressions upon reaching the coast, and the corresponding increase of energy to be expected, — a lesson that should be borne in mind by every navigator leaving port with a falling barometer, and other signs of a storm. It has reminded us of the vitally important influence of the Gulf Stream in causing such increase of energy, and to the necessity of closely watching this great warm ocean-current, and noting any abnormal conditions of volume, velocity, temperature, and position; especially so during the spring and autumn months, — the periods of most rapid change in the conditions of oceanic and atmospheric circulation. The storm has established in most unmistakable terms the importance, not only to our extensive shipping interests, but to the people of all our great seaboard cities, of the establishment of telegraphic signal stations at outlying points off the coast, — at St. Johns and Sable Island, to watch the movement of areas of high barometer, upon which that of the succeeding 'low' so largely depends; and at Bermuda, Nassau, and various points in the West Indies and Windward Islands, that we may be forewarned of the approach and progress of the terrific hurricanes which, summer after summer, bring devastation and destruction along our Gulf and Atlantic coasts." Discussions like the present will contribute largely to arousing and keeping alive an interest in these researches, the practical and scientific value of which cannot be overestimated.

BOOK-REVIEWS.

Allen and Greenough's Latin Grammar. Revised by J. B. GREENOUGH and G. L. KITTREDGE. Boston, Ginn & Co. 12°. \$1.35.

ADVANTAGE has been taken of the opportunity offered by the necessary recasting of the plates of this book to have such improvements made in it as the advance of grammatical knowledge and the experience of the schoolroom have shown to be advisable. The revisers have simplified the statement of principles, so far as a preservation of strict correctness would admit, but without any approach to a mechanical method of treating the science of language. Many explanations and suggestions, in text and footnotes, have been added to those given in previous editions, for the benefit of teachers and advanced scholars.

In the revision of this work, the needs of the classroom have evidently been kept constantly in view, resulting in great accuracy, combined with clearness and simplicity of statement. Although the matter of the book has been simplified, the size of the book has been increased, for simplification sometimes necessitates expansion. Many things taken for granted or merely suggested in the old edition have been expressly stated in this revision. Much new matter will be found, marking, in many particulars, a substantial advance. Thus, the chapter on word-formation has been entirely rewritten, many new points being presented; the treatment of the temporal particles has been recast; the section on reflexive pronouns has been rewritten; and the chapter on words consists in great part of new matter.

Some other subjects, in the treatment of which the new edition will be found more satisfactory than the old, and to which the especial attention of both student and teacher may be called, are included in that part of the book between Sections 248 and 332. There is also much new philological matter, which is nearly all printed in small-type notes, being intended more for the advanced student than the beginner.

Very numerous cross-references have been furnished in this edition, by means of which the ramifications of a construction,

etc., can readily be traced. In the same way references have been inserted in the grammatical analyses at the head of each chapter.

Typographically the present edition is a great improvement on the old. The pages are much more open and pleasing to the eye; section-headings have been used, and the paradigms have been printed in large full-faced type; important words in the examples are distinguished by the use of black type, and the size of the note type has been reduced, so that there is more difference to the eye than formerly between the text and the notes. The index of words and subjects is enlarged and revised, a separate index of verbs has been added, the glossary of terms has received additions, and the list of authors has been divided into periods. The list of important rules of syntax has been made more complete, and furnished with references to the body of the book, and in its present form will furnish pupils with a convenient and accurate summary. With a few exceptions at the beginning of the book, the section-numbers of the new edition correspond with those of the old, so that references to either are good for the other.

A Text-Book of General Astronomy. By CHARLES A. YOUNG. Boston and London, Ginn & Co. 8°. \$2.40.

THE present work is designed as a text-book of astronomy suited to the general course in our colleges and schools of science, and is meant to supply that amount of information upon the subject which may fairly be expected of every liberally educated person. Therefore it contains no proofs of astronomical theorems, except such deductions as can be explained by the use of elementary algebra, geometry, and trigonometry; its aim being to give a clear, accurate, and justly proportioned presentation of astronomical facts, principles, and methods in such a form that they can be easily apprehended by the average college student.

The author has fully accomplished his object, and his work is excellently adapted to the purposes of teacher and student, the matter being arranged systematically, and presented clearly. A great number of carefully selected illustrations enhance the value of the book and add to its clearness. After a brief introduction, in which the more important definitions are given, the author describes the principal astronomical instruments, the methods of observation, and the corrections of astronomical observations. After the discussion of a few problems of practical astronomy, such as determination of latitude and longitude, the dimensions and shape of the earth and the methods of its determination are described. After explaining the phenomena of the earth's orbital motion, the author proceeds to a description of the movements and physical character of the moon and sun. A special chapter is devoted to eclipses. It is only after the description of these movements that the author takes up the forces causing these motions. He discusses the law of gravitation and the important "Problem of Three Bodies," giving a very clear definition of perturbations. Then the planets are described. Before considering the fixed stars, comets and meteors, and the numerous unexplained phenomena and processes observed in these bodies, are treated in a comprehensive chapter. The book concludes with a discussion of the nebular hypothesis. This brief synopsis shows that the book is thoroughly methodical in its arrangement, and will therefore prove very useful for teachers and students.

The Australian Ballot System. By JOHN H. WIGMORE. Boston, Charles C. Soule. 8°. \$1.

THE object of this work is to describe the method of voting devised by Francis S. Dutton of South Australia, which seems likely to be adopted wherever representative institutions prevail. It has been practised in Australia for thirty years, and was adopted in England in 1872, and soon afterwards in Canada and Belgium. Last year it became the law in Massachusetts; and bills embodying its provisions have been introduced into the legislatures of New York and many other American States. Its essential characteristics are now pretty generally known. The names of all the candidates for a particular office are printed on the same slip of paper, and the voter marks a cross (x) against the name of the person he wishes to vote for. The ballots are printed at public expense, and distributed by public officers. The voter is required to mark his

ballot privately, so that absolute secrecy is secured. The object, and the effect wherever the system has been tried, is to put an end to bribery and intimidation. It being impossible to ascertain how a man votes, you cannot bribe or coerce him to vote as you wish. Mr. Wigmore here gives us a brief history of the system since its origination in Australia, with the arguments in its favor, and then presents in full the statute of Massachusetts, with the essential portions of the South Australian, the English, and several others. He gives also a specimen ballot according to the Massachusetts law, and also a full description, with illustrative cuts, of the mode of voting. Altogether his book contains the most complete and accurate account of the system we have anywhere met with, and may be cordially commended to all interested in political reform.

- (1) *Die Rolle der Suggestion bei gewissen Erscheinungen der Hysterie und des Hypnotismus: Ein kritisches und experimentelles.* Von Dr. ARMAND HUECKEL. Jena, 1888.
- (2) *Ueber hypnotische Suggestionen, deren Wesen, deren klinische und strafrechtliche Bedeutung.* Von JOH. G. SALLIS. Berlin, 1888.
- (3) *Der Hypnotismus und seine strafrechtliche Bedeutung.* Von Dr. AUGUST FOREL. Berlin and Leipzig, 1888.
- (4) *Eine experimentelle Studie auf dem Gebiete des Hypnotismus.* Von Dr. R. v. KRAFFT-EBBING. Stuttgart, 1888.
- (5) *Ein Beitrag zur therapeutischen Verwerthung des Hypnotismus.* Von ALBERT, FREIHERRN V. SCHRENCK-NOTZING. Leipzig, 1888.
- (6) *Ueber Hypnotismus.* Von Dr. HERING. Berlin, 1888.
- (7) *Hypnotismus und Willensfreiheit.* Von F. MIESCHER. 1888.
- (8) *Der Hypnotismus in der Paedagogik von einem Schulmanne, und mit einem Vorwort.* Von JOH. G. SALLIS. Berlin, 1888.
- (9) *Hypnotismus und Wunder; ein Vortrag mit Weiterungen.* Von MAX STEIGENBERGER, DOMPREDIGER. Augsburg, 1888.

THE science of modern hypnotism is distinctly of French origin. The greatest of charlatans in this field, who disturbed the peace of so many credulous souls, won his fame and fortune in Paris; and it was in Paris that the successful steps were taken to atone for this injury by bringing these curious and startling phenomena into scientific repute. The movement, once started, grew rapidly, — indeed, with an almost morbid rapidity, — and within the last year or two the phenomena announced as demonstrated among the highly sensitive and very plentiful subjects of Paris seem marvellous, and threaten to overturn or vastly extend the tenets of science. Among much that is strange, much that is new, much that is false, and much that is true, it is difficult to know what to credit, and what to reject.

As has happened often before, the lookers-on are better judges than the players, and the Germans have assumed the attitude of critics. Not as liable as their enthusiastic neighbors to lose self-control in the whirl of interest, they have been calmly sifting the evidence, and assimilating the new to the old, rather than magnifying the novel into the mysterious. For this reason a review of recent German works upon hypnotism — of which those mentioned above form a typical selection, though only a selection in this rapidly increasing literature — may be of service in acquainting an American public with the true aspect of hypnotic research.

Dr. Hückel's pamphlet (1) is doubtless the most important on this list, and deals with the central point of discussion, — the issue between the school of Paris, headed by Charcot, and the school of Nancy, of which Dr. Bernheim may be declared the leader. The former hold that the hypnotic condition is induced by physical causes, such as passes, pressures, etc.; that there are three stages of hypnosis well differentiated, the passage from one to the other being accomplished by physical manipulations (closure or opening of the eyelids, pressure upon the vertex); that the phenomena assume their most typical form, and should be studied in hysterical patients; that the magnet has a distinct physical effect upon sensi-